9.

Material Safety Data Sheet

KINGS MOUNTAIN MICA

Oglebay Norton Specialty Minerals
Issued: 10/25/2002
Replaces: 07/15/2002

1. PRODUCT IDENTIFICATION

Manufacturer:

Oglebay Norton Specialty Minerals
P.O. Box 729
Kings Mountain, NC 28086
704-734-3550
704-739-7888 fax

Emergency Phone:
Chemtrec
800-424-9300

Synonyms: (Silicate, Mica), Muscovite Mica, Micro Mica, Dry Ground Mica, Wet Ground Mica

Product Names: Wet Ground Mica: H-360, HAR-160, HiMod-270, HiMod-360, HiMod-370, S-360, WG-160, WG-325
Dry Ground Mica: 1-K, 4-K, 4-KLE, 100-K, FS-255, F-260
Flake Mica: 20-K, L-125, L-135, L-140, F-120
Micro Mica: C-500, C-1000, C-3000, C-4000, HiMod-450, L-477

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Formula: $KAL_2Si_3O_{10}(OH)_2 \bullet 5H_2O$
Chemical Family: Silicate Minerals
C.A.S. No.: 12001-26-2 (Listed as Silicate, Mica)
Canadian Product ID No.: None Listed
Product Use: Industrial Manufacturing

3. HAZARD IDENTIFICATION

Labeled in accordance with OSHA'S Hazard Communication Rule and the HMIS Rating System developed by the National Paint and Coatings Association, 1500 Rhode Island Ave. N. W., Washington, D.C. 20005.

O.S.H.A./H.M.I.S. LABEL

HEALTH* = 0	No acute effects
FLAMMABILITY = 0	Non-flammable
REACTIVITY = 0	Non-reactive
PERSONAL PROTECTION EQUIPMENT= E*	Dust Mask

* See Material Safety Data Sheet. Prolonged breathing of excessive dust may adversely affect lung function. Use NIOSH approved dust mask for dusty conditions.

Oglebay Norton Specialty Minerals
P.O. BOX 729
KINGS MOUNTAIN, NC 28086

4. FIRST AID MEASURES

Eyes:
Immediately flush the eyes with plenty of water for at least fifteen minutes. If irritation occurs or persists, obtain medical attention.

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If irritation occurs and persists, obtain medical attention.

5. FIRE FIGHTING MEASURES

National Fire Protection Code 704:	Fire (Red) (0), Health (Blue) (0), Reactivity (yellow) (0)
Physical Hazard:	Non-combustible
Flammability in Air:	Not applicable
Flash Point:	Not applicable
Autoignition Temperature:	Not applicable
Extinguishing Media:	Any suitable for fire in surrounding area
Special Fire Fighting Procedure:	Not applicable
Explosion Data:	Non-explosive
Unusual Fire & Explosion Hazard:	None
Incompatibility:	None
Hazardous Combustion Products:	Not applicable
Sensitivity to Mechanical Shock:	Not applicable
Sensitivity to Static Discharge:	Not applicable
Conditions of Reactivity:	None
Hazardous Decomposition Products:	Not applicable
Conditions Contributing to Instability:	None
Conditions Contributing to Hazardous Polymerization:	Does not polymerize

6. ACCIDENTAL RELEASE MEASURES

None, A spill can be sprayed with water to suppress dust and then either washed away or shoveled into a suitable disposal container. (See 13. Disposal Consideration)

7. HANDLING AND STORAGE

Do not breathe dust and avoid getting in eyes.
Keep container closed.
Use with adequate ventilation.
Drying and/or grinding may increase dusting hazards
Control dust levels in the work place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal Protection Equipment:

Respiratory: Wear a NIOSH/MSHA approved respirator when adequate ventilation is not a available.

Eyes: Safety glasses or goggles

Gloves: None

Footwear: No special type indicated.

Clothing: No special type indicated.

Others: None.

Ventilation Requirements: Provide adequate ventilation to maintain below exposure limits (Section III) for quartz and mica.

Ingredient Exposure Limits:

TLV Data

Material	C.A.S. No.	Wt. %	PEL (OSHA)	TWA (ACGIH)	STEL (ACGIH)	Ceiling (OSHA)	IDLH (OSHA)
Mica	12001-26-2	95.0 to 99.9	20 mppcf	3 mg/M^3 (1)	No applicable information was found.		
Quartz	14808-60-7	0.1 to 5.0 (4)	10 mg/M^3 ÷ (% SiO_2 +2) Ref. (2)	0.1 mg/M^3 (1)	No applicable information was found		50 µg/M^3 (3) 10 hr TWA

(1) Respirable Dust--See Threshold Limit Value and Biological Exposure Indices for 1991-1992, ACGIH
(2) Respirable Quartz--See 29 CFR ¤ 1910.1000 Table Z-1-A, Air Contaminants.
(3) Respirable Free Silica
(4) Respirable Free Silica for most products @ < 1% (see Typical Property Data Sheet for specific product value)

Ingredient Animal Test Data

Material	Canadian PIN	LD_{50} Species and Route	LC_{50} Species and Route
Mica	None listed	No applicable information was found	
Quartz	None listed	No applicable information was found	

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Vapor Density:	Not applicable (Air = 1)
Appearance and Odor:	Odorless white powder
Vapor Pressure:	Not applicable
Odor Threshold:	Not applicable
Boiling Point:	Not applicable
Melting Point:	Decomposes without melting near 1000°C (1832 °F)
Density/Specific Gravity	2.8 g/cc
pH (as is) @ 25°C:	Not applicable
pH (1% Slurry) @ 25 °C:	Not applicable
Coefficient of Water/Oil Distribution:	Not applicable

10. STABILITY AND REACTIVITY

Stability:	Stable
Solubility in Water:	Insoluble (% by wt. @ 25 °C (77°F))
Volatiles:	Not applicable
Evaporation Rate:	Not applicable (Butyl Acetate = 1)

11. TOXICOLOGICAL INFORMATION

Product Health Hazard: OSHA/IARC STATEMENT

This material contains crystalline silica. Some researchers have reported evidence that it is carcinogenic in humans following prolonged and repeated inhalation. Prolonged and repeated breathing of dust can cause silicosis.

Route (s) of Exposure:	Hazard	Product Tox Data and Reference
Eye Contact:	This substance may irritate the eyes.	No animal toxicology data available
Inhalation:	Respirable particles of quartz are hazardous to inhale.	No animal LC_{50} toxicology data is available

Effects of Overexposure:

Acute Effects: Possible irritation to the eyes.

Chronic Effects: Respiratory irritant. Chronic lung damage, scar tissue development in lungs can occur if inhaled over an extended period of time. Follow TLV exposure limits, Section III.

11. TOXICOLOGICAL INFORMATION (continued)

Product Health Hazard:

Carcinogenicity: OSHA/IARC STATEMENT

This material contains crystalline silica. Some researchers have reported evidence that it is carcinogenic in humans following prolonged and repeated inhalation. Prolonged and repeated breathing of dust can cause silicosis.

NTP Annual: Not listed.

IARC Monograph: Crystalline silica is listed as a carcinogen to animals and there is limited evidence for the carcinogenicity to humans, Group 1

OSHA 29 CFR Part 1910 Subpart Z: Not listed

ACGIH (Appendix A): Not listed

Irritancy: Respiratory irritant per OSHA, ACGIH and NIOSH and Canadian WHMIS

Sensitization: No information available

Teratogenicity: No information available

Mutagenicity: No information available

Toxicologically Synergistic Products: No information available

Any Medical Conditions Generally Recognized as Being Aggravated by Exposure:
Prior existing lung or respiratory illness

12. ECOLOGICAL INFORMATION

Ecotoxicity Not know to have negative effects on the environment.

13. DISPOSAL CONSIDERATION

Procedure for Release or Spill: Wet with water to reduce dusting and collect in a suitable container.

Waste Disposal Method: Dispose of waste according to federal EPA state and local regulations.

14. TRANSPORTATION INFORMATION

Domestic:

DOT Proper Shipping Name:	Mica
DOT Classification:	None
DOT Labels:	Mica
DOT Marking:	None
DOT Placard:	None
UN Number:	None

Foreign:

IMCO Proper Shipping Name:	Mica
IMCO Hazard Classification:	None
IMCO Labels:	Mica
IMCO Marking:	None

49 STCC Number: None

Emergency Accident:
Precautions and Procedures: None

Precautions to be taken in Transportation: No special precautions

15. REGULARITY INFORMATION

USA:

TSCA: As a naturally occurring substance, mica is automatically included in the inventory under regulation 40 CFR 710.4, chapter 1, subsection b (7/1/86). See EPA TSCA section 8 (e) Status Report 8EHQ-0986-0632. Also, see EPA TSCA test submission (TSCATS) data base, September, 1993.

OSHA: PEL 8H TWA 20 mppcf, respirable dust. FEREAC 54, 2923, 89
PEL Final 8H TWA 3 mg/m^3 respirable dust. FEREAC 54, 2923, 89

NIOSH Criteria Documents: Relative to silicates. (< 1% Crystalline Silica): Mica in air: 10H TWA 3 mg/m3
NIOSH DHHS #92-100, 92
NOHS 1974: Hazard 48535; NIS 135; TNF 12333; NOS 98; TNE 169296
NOHS 1983: Hazard X1564; NIS 2; TNF 9; NOS 3; TNE 296

ACGIH: TLV-TWA 3 mg/m3, respirable dust. 85INA8 5, 413, 86

MSHA: Air TWA 20 mppcf. DTLWS 3, 33, 73

15. REGULARITY INFORMATION (Continued)

SARA III Section 313: This product does not contain any toxic chemicals subject to the reporting and requirements of Section 313 of Title III of the Superfund Amendments Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Clean Water Act Section 307 and 311: Mica is classified as a "non toxic pollutant" or "non hazardous substance"

CERCLA, 40 CFR Part 302, Table 302.4: Not listed

Section 302: Not listed

California Proposition 65: "Warning: This product contains a chemical known to cause cancer.".

RCRA: Non hazardous under RCRA 3001 40 CFR Part 261.4 (b) (7)

RCRA Metals--TCLP, EPA Method 1131, 40 CFR Part 261-24, Appendix II: No detectable amounts of toxic substances shown in table 1 of this regulation were found in the leachate. TCLP analysis gave the following:

Metal	mg/L	Percent
Arsenic	< 0.05	< 0.0005
Barium	< 1.0	< 0.01
Cadmium	< 0.01	< 0.001
Chromium	< 0.06	< 0.0006
Mercury	< 0.002	< 0.00002
Lead	< 0.05	< 0.0005
Selenium	< 0.08	< 0.0008
Silver	< 0.05	< 0.0005

These levels of RCRA metals are typical and may change slightly with different lots and types of mica.

Heavy Metals "CONEG Model" Legislation: There are no cadmium, hexavalent chromium, lead or mercury additives in these mica products. Mica contains only trace amounts of these elements. The following list shows typical values (percent) for bulk analysis of mica using atomic adsorption:

Antimony	< 0.02 (< 200 ppm)	Fluoride	< 0.05 (< 500 ppm)
Arsenic	< 0.0002 (< 2 ppm)	Lead	< 0.01 (< 100 ppm)
Barium	< 0.002 (< 20 ppm)	Manganese	< 0.002 (< 20 ppm)
Beryllium	< 0.0002 (< 2 ppm)	Mercury	< 0.0002 (< 2 ppm)
Cadmium	< 0.002 (< 20 ppm)	Nickel	< 0.008 (< 80 ppm)
Chromium	< 0.002 (< 20 ppm)	Selenium	< 0.02 (< 200 ppm)
Chromium +6	< 0.008 (< 80 ppm)	Silver	< 0.002 (< 20 ppm)
Cobalt	< 0.002 (< 20 ppm)	Thallium	< 0.02 (< 200 ppm)
Copper	< 0.002 (< 20 ppm)	Zinc	< 0.002 (< 20 ppm)

15. REGULARITY INFORMATION (Continued)

FDA Regulations: Mica is permitted in the following applications:

Food additives by direct listing	§182.99 (now EPA 40 CFR 180.1001)
Adhesives	§175.105.5
Resinous and Polymeric Coatings	§175.300.3
Rubber articles intended for repeated use.	§177.2600
Components of paper and paperboard in contact with aqueous and fatty food	§176.170
Closures with sealing gaskets for food containers	§177.1210
Ethylene-vinyl acetate copolymers	§177.1350
Melamine-formaldehyde resins in molded articles by cross reference to ¤175.300	§177.1460
Components of paper and paperboard in contact with dry food by cross reference to ¤176.170	§176.180
Color additive in cosmetics	§73.1496 and ¤73.2496
Olefin polymers in contact with food	§177.1520

This regulation states that food contact articles may include substances that meet FDA prior approval.

CANADA:

Ontario 309 & Quebec--Class 1 Annexe III: Mica complies with the regulations. Mica is an inert product. No hazardous compound or ions leach from mica during normal processing.

WHMIS:

Hazard Classification	Class D, Division 2, Subdivision A
Disclosure List:	Mica and silica are both listed (1% each)
Domestic Substances List (DSL):	Mica is on this list
JAPAN:	Mica is not listed in the MITI index. Substances controlled by this law are substances obtained by the chemical reactions of an element or a chemical compound. Mica is therefore exempted from regulation by this law.
AUSTRALIA:	Mica is listed in the ACOIN C.A.S. Registry number section as mica group minerals, 12001-26-2. TWA 2.5 mg/m^3
BELGIUM:	Mica TWA 3 mg/m^3
THE NETHERLANDS:	Mica TWA 5 mg/m^3
SWITZERLAND:	Mica TWA 3 mg/m^3
UNITED KINGDOM:	Mica TWA 1 mg/m^3 respirable dust; 10 mg/m^3 total dust
BULGARIA, COLOMBIA, JORDAN, KOREA, NEW ZEALAND, SINGAPORE, VIET NAM:	TLV-TWA 3 mg/m^3, respirable dust

16. OTHER INFORMATION

none

----End of MSDS----